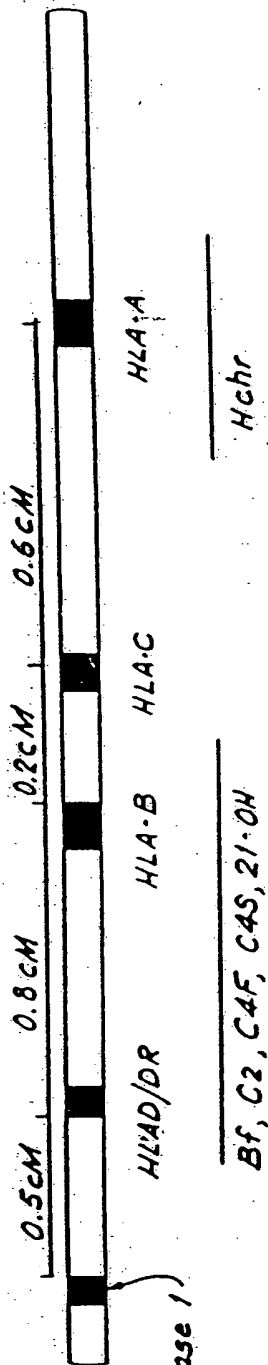


Attorney
Express Mail No.



idiopathic hemochromatosis

FIG. 1

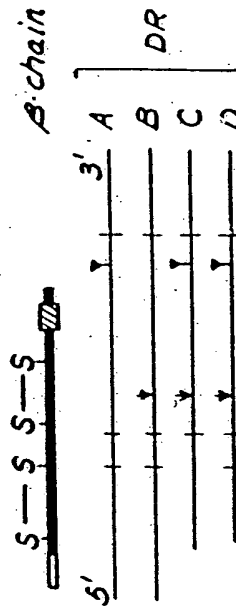
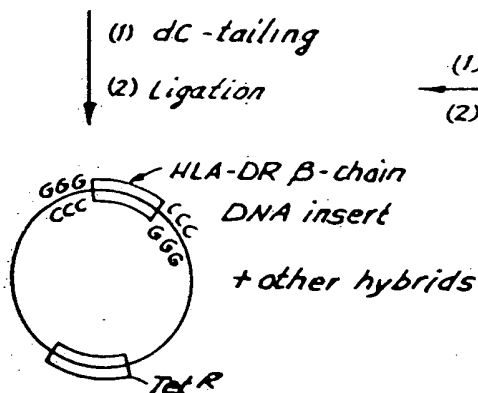
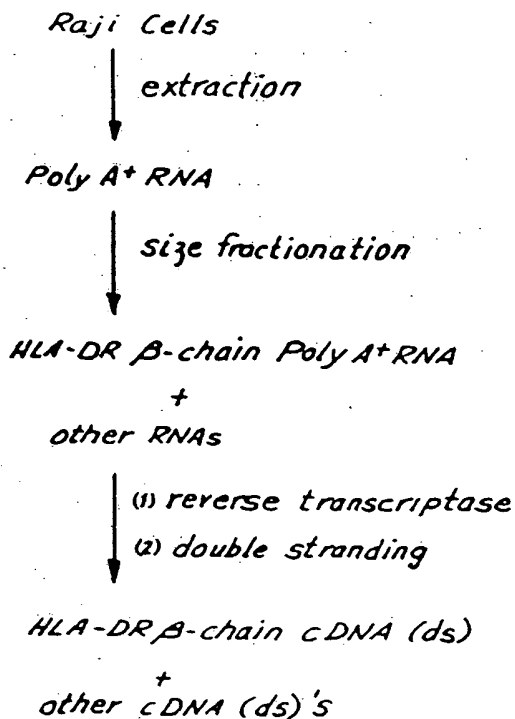
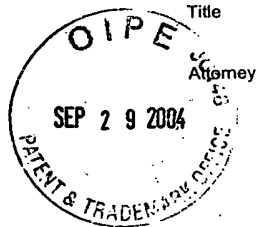
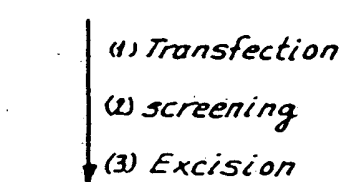
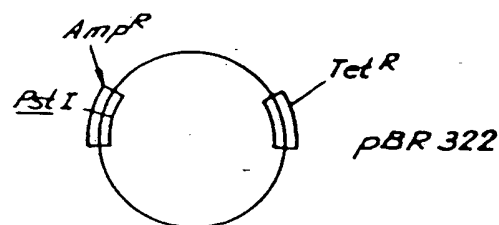


FIG. 4



(1) *Pst I*
(2) *dG-tailing*



made
← *Competant*

E. coli: HB101

HLA-DR β -chain
cDNA inserts

FIG. 2

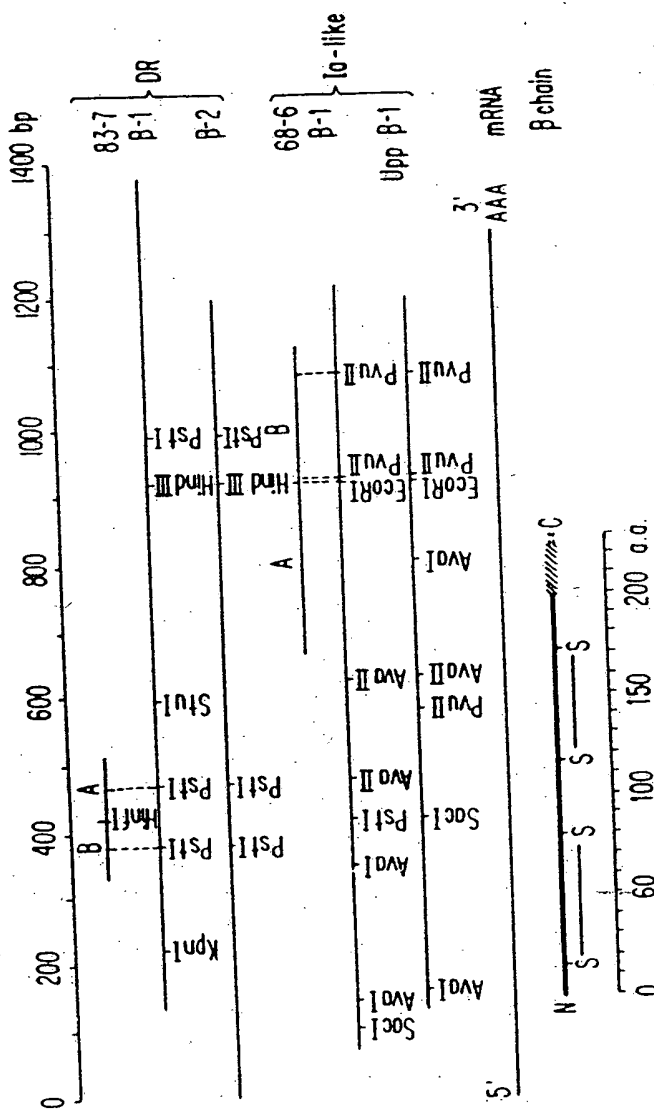
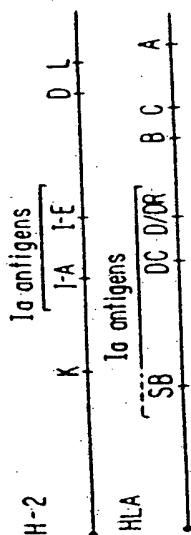
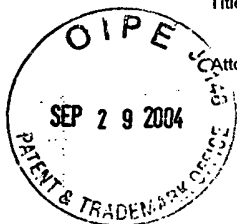


FIG. 3

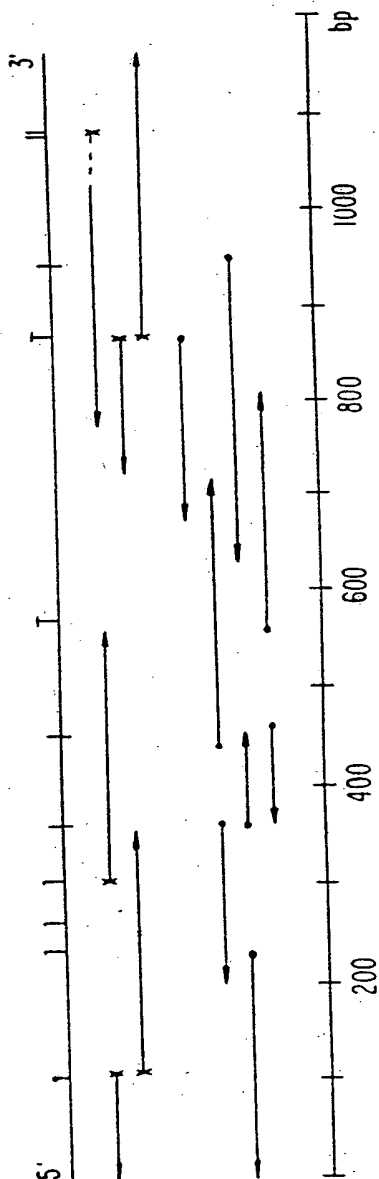


Applicant
Application No
Title
Attorney

Bernard F. Mach et al.
08/484,786
Confirmation No. 4894
DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 4/18
Docket No. MACH 2/CON
Group Art Unit: 1634

FIG. 5A





Attorney

DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

-29
M V C L
ATG GTG TGT CTG 47

(G)_n CTCCTCTGGCCCTGGTCCCTGTCTCTCTCTCTCCAGC

K L P G G S S L A A L T V T 89
AAG CTC CCT GGA GGC TCC AGC TTG GCA GCG TTG ACA GTG ACA

L M V L S S R L A A F A G D T 131
CTG ATG GTG CTG AGC TCC CGA CTG GCT TTC GCT GGG GAC ACC

R P R F L L E L L K S E C H F 173
CGA CCA CGT TTC TTG GAG CTG CTT AAG TCT GAG TGT CAT TTC

F N G T E R V R F L E R H F 215
TTC AAT GGG ACG GAG GAG CGG GTG CGG TTC CTG GAG AGA CAC TTC

H N Q E E Y A R F D S D V G 257
CAT AAC CAG GAG GAG TAC GCG CGC TTC GAC AGC GAC GTG GGG

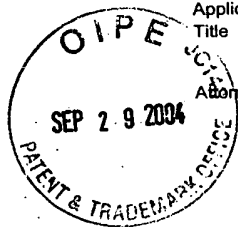
FIG. 5B

DNA SEQUENCES CODING FOR THE DR B-CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000



E	Y	R	A	V	R	E	L	G	R	P	D	A	E	299
GAG	TAC	CGG	GCG	GTG	AGG	GAG	CTG	GGG	CGG	CCT	GAT	GCC	GAG	
60	Y	W	N	S	Q	K	D	L	L	E	Q	K	R	G
TAC	TGG	AAC	AGC	CAG	AAG	GAC	GAC	CTC	CTG	GAG	CAG	AAG	CGG	GGC
Q	V	D	N	Y	C	R	H	N	Y	G	V	V	E	383
CAG	GTG	GAC	AAT	TAC	TGC	AGA	CAC	AAC	TAC	GGG	GTT	GTG	GAG	
90	S	F	T	V	Q	R	R	V	H	P	Q	V	T	V
AGC	TTC	ACA	GTG	CAG	CGG	CGA	GTC	CAT	CCT	CAG	GTG	ACT	GTG	
Y	P	A	K	T	Q	P	L	Q	H	H	N	L	L	467
TAT	CCT	GCA	AAG	ACC	CAG	CCC	CTG	CAG	CAC	CAC	AAC	CTC	CTG	
120	V	C	S	V	S	G	F	Y	P	G	S	I	E	V
GTC	TGC	TCT	GTG	AGT	GGT	TTC	TAT	CCA	GGC	AGC	ATT	GAA	GTC	

FIG. 5C



Applicant
Application No
Title
Attorney

Bernard F. Mach et al.
08/484,786 Confirmation No. 4894
DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 7/16
Docket No. MACH 2/CON
Group Art Unit: 1634

```
130   R   W   F   R   N   G   Q   E   E   K   A   G   V   V   551
      AGG TGG TTC CGG AAC GGC CAG GAA GAG AAG GCT GGG GTG GTG

140
      S   T   G   L   I   Q   N   G   D   W   T   F   Q   T   593
      TCC ACG GGC CTG ATC CAG AAT GGA GAC TGG ACC TTC CAG ACC

150
      L   V   M   L   E   T   F   P   R   S   G   E   V   Y   635
      CTG GTG ATG CTA GAA ACA TTT CCT CGG AGT GGA GAG GTT TAC

160
      T   C   Q   V   E   H   P   S   V   T   S   P   L   T   677
      ACC TGC CAA GTG GAG CAC CCA AGC GTA ACG AGC CCT CTC ACA

170
      V   E   W   S   A   R   S   E   S   A   Q   S   K   M   719
      GTG GAA TGG AGT GCA CGG TCT GAA TCT GCA CAG AGC AAG ATG

180
      L   S   G   V   G   G   F   V   L   G   L   L   F   L   761
      CTG AGT GGA GTC GGG GGC TTT GTG CTG GGC CTC CTC TTC CTT

190
      L   S   G   V   G   G   F   V   L   G   L   L   F   L   761
      CTG AGT GGA GTC GGG GGC TTT GTG CTG GGC CTC CTC TTC CTT

200
```

FIG. 5D



220
G A G L F I Y F R N Q K G H
GGG GCC GGG CTG TTC ATC TAC TTC AGG AAT CAG AAA GGA CAC 803

230
S G L Q P T G F L S
TCT GGA CTT CAG CCA ACA GGA TTC CTG AGC TGA AGTGCAGATGA 847

237
CAATTAAAGGAAGAAATCTTCTTCCCCAGCTTTGCAGGATGAAAAGCTTTCCCGCC 902

TGGCTGTTATTCTTCCACGAGAGAGGGCTTTCTCAGGACCTAGTTGCTACTGGTT 957

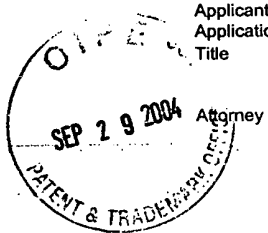
CAGCAACTGCAGAAAATGTCCTCCCTTGTGGCTTCCCTCAGTTCCTGCCCTTGGCC 1012

TGAAGTCCCAGCATTGATGGCAGCGCCTCATCTTCAACTTTTGTGCTCCCCCTTGT 1067

CCTAAACCCCTATGGCCCTCCTGTGCATCTGTACTCACCCCTGTACCACAAACACATT 1122

ACATTATTAAATGTTTCTCAAAGATGGAGTTAAAAAA(C)_n 1160

FIG. 5E



Applicant
Application No
Title

Bernard F. Mach et al.
08/484,786 Confirmation No. 4894
DNA SEQUENCES CODING FOR THE DR B-CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 9/16
Docket No. MACH 2/CON
Group Art Unit: 1634

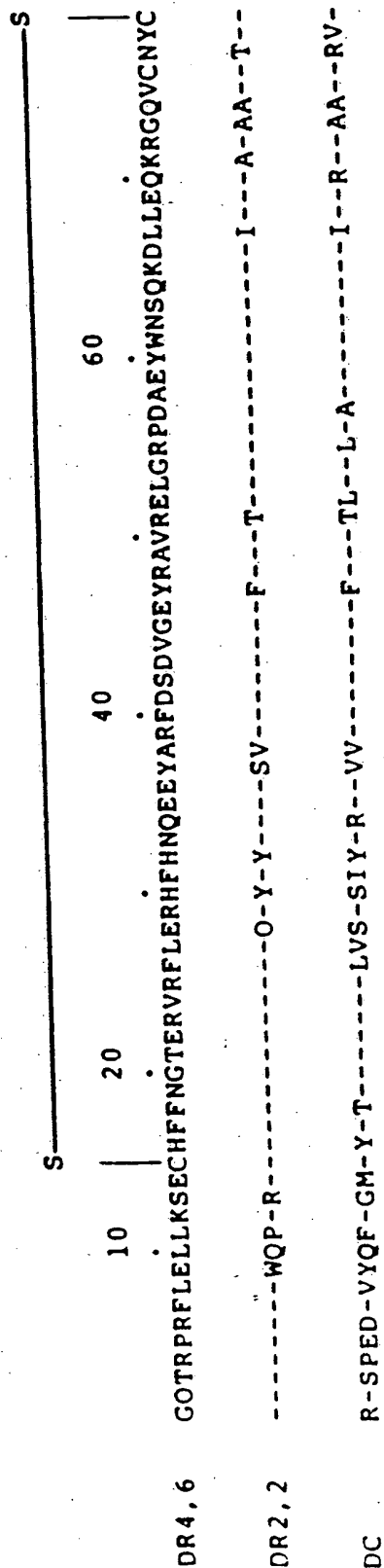
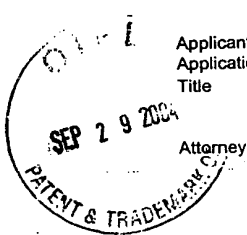


FIG. 6A



Applicant
Application No
Title

Attorney

Bernard F. Mach et al.
08/484,786 Confirmation No. 4894
DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 10/16
Docket No. MACH 2/CON
Group Art Unit: 1634

80 100
DR4,6 RHNYGVVESFTVQRRVHPQVTVPYPAKTQPLQHNNLLV
DR2,2 -----Q-K-----S-----
DC -----QLELRT-L-----E-T--IS-SR-EA-N-----

FIG. 6B

Applicant
Application No
Title

Attorney

Bernard F. Mach et al.

08/484,786

Confirmation No.

4894

DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 11/16
Docket No. MACH 2/CON
Group Art Unit: 1634

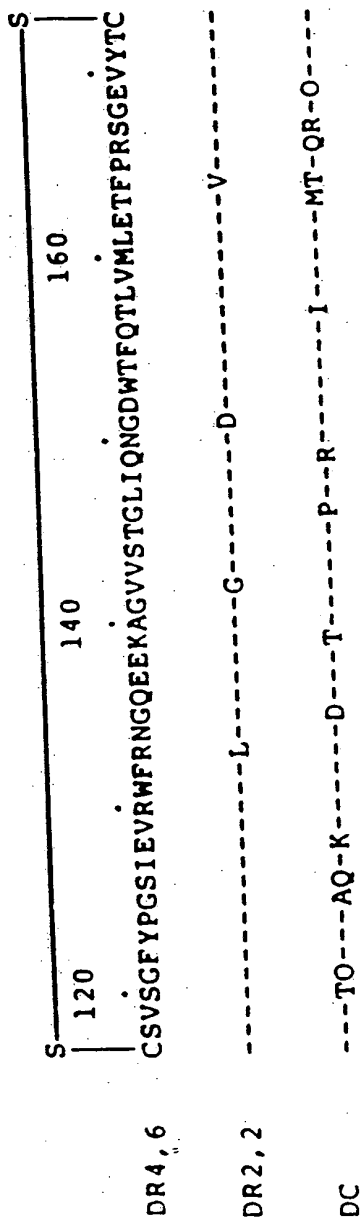


FIG. 6C

SEP 29 2004

PATENT & TRADEMARK OFFICE

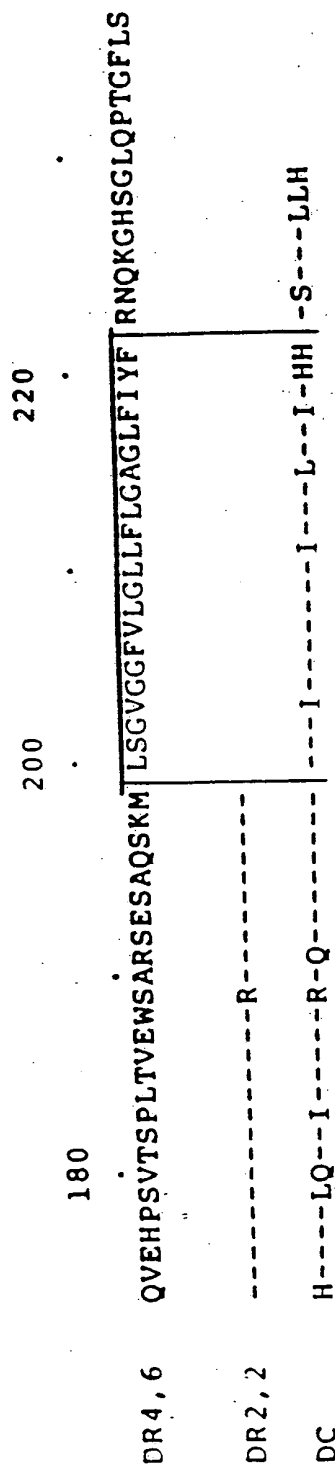


FIG. 6D



Bernard F. Mach et al.
08/484,786 Confirmation No. 4894
DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 13/18
Docket No. MACH 2/CON
Group Art Unit: 1634

[illegible]

Attorney

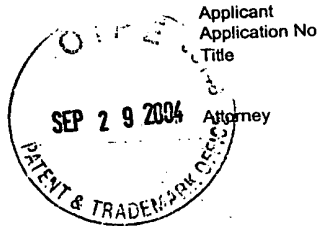
4894

08/484,786 Confirmation No. 1554
DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pieri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 14/16
Docket No. MACH 2/CON
Group Art Unit: 1634

FIG. 7A

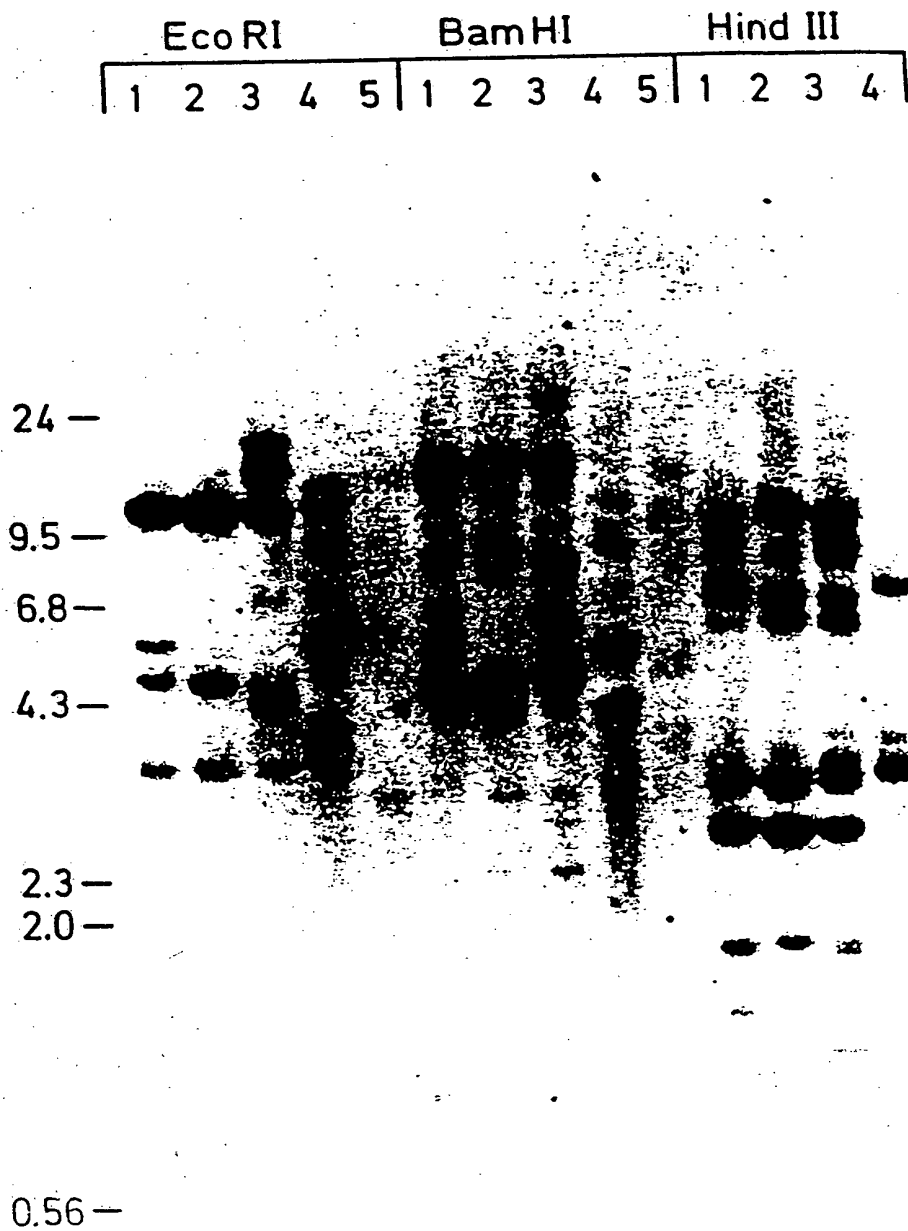
160
T F Q T L V M L E I V P R S G E V Y 170
ACC TTC CAG ACC CTG CTG ATG CTG GAA ACA GTT CCT CGG AGT GGA GAG GTT TAC ACC TGC CAA GTG GAG CAC CCA AGC CTG ACG AGC 180
190
P L T ACA CTG GAA TGG AGA GCA CGG TCT GAA TCT GCA CAG AGC AAG ATG CTG AGT GGA GTC GGG GGC TTC GTG CTG GGC CTG CTC 200
210
F L T G A G L F I Y 220
TTC GGG GCC GGG CTG TTC ATC TAC TTG AGG AAT CAG AAA GGA CAC TCT GGA G L S G P T G F L S 237
230
GAT GAC CAC ATT CAA GGA AGA ACC TTC TGC CCC AGC TTT GCA GGA TGA AAC ACT TCC CCG CTT GGC TCT CAT TCT TCC ACA AGA GAG 245
250
ACC TTT CTC CGG ACC TGG TTG CTA CTG GTT CAG CAG CTC TGC AGA AAA TGT CCT CCC TTG TGG CTG CCT CAG CTC GTA CCT TTG GCC 260
270
TGA AGT CCC AGC ATT AAT GGC AGC CCC TCA TCT TCC AAG TTT TGT GCT CCC CTT TAC CTA ATG CTT CCT GCG TCC CAT GCA TCT GTA 280
290
CTC CTG CTG TGC CAC AAA CAC ATT ACA TTA TTA AAT GTT TCT CAA ACA TGG AGT TAA AAA AAA AAA AAA AAA AAA AA 300



Bernard F. Mach et al.
08/484,786
DNA SEQUENCES CODING FOR THE DR β -CHAIN LOCUS OF
THE HUMAN LYMPHOCYTE ANTIGEN COMPLEX AND POLYPEPTIDES,
DIAGNOSTIC TYPING PROCESSES AND PRODUCTS RELATED THERETO
Margaret A. Pierri, Reg. No. 30,709, Tel: (212) 596-9000

Sheet: 15/16
Docket No. MACH 2/CON
Group Art Unit: 1634

FIG. 8





Attorney

FIG. 9

Region I

AA	8	9	10	11	12	13	14
	L	E	L	L	K	S	E
HLA-DR- β -A	T	T	G	G	A	G	T
HLA-DR- β -	T	T	G	G	A	G	T
	L	E	Q	V	K	H	E

Region II

AA	26	27	28	29	30	31	32
	F	L	E	R	H	F	H
HLA-DR- β -A	T	T	C	T	G	A	G
HLA-DR- β -	T	T	C	T	G	A	G
	F	L	D	R	Y	F	Y

Region III

AA	72	73	74	75	76	77	78
	R	G	Q	V	D	N	Y
HLA-DR- β -A	C	G	G	C	A	G	T
HLA-DR- β -	C	G	G	C	A	G	T
	R	A	A	V	D	T	Y